

Lat 39.63837 Lon -120.27910

Forest Pest Management

Pacific Southwest Region



File 3420
Code:

Date: August 29, 2000

Subject: Winter injury to seedlings in the Cottonwood burn area (Report No. NE00-17)

To: District Ranger, Sierraville Ranger District, Tahoe National Forest

During the winter of 1999/2000, about 14,720 acres of natural pine regeneration within the Cottonwood burn appeared to suffer unusually high amounts of needle and twig mortality. In June 2000, Sheri Smith, Rick Turcotte and Bill Woodruff (Forest Pest Management) along with Steve Weaver, District Silviculturist and Larry Ford, Planning & Preparation Forester, examined the seedling damage in various locations. The objectives of the field visit were to determine the cause of the injury, determine what influence the injury may have on seedling growth and survival and provide management recommendations if appropriate.

Regeneration in the area is dominated by pine species with a minor component of white fir and incense cedar. Seedlings range in age up to 6 years and in height up to 3.5 feet. Some of the regeneration was manually released during 1999 and 2000. We examined seedlings at two specific sites, however various levels of seedling injury were present in all areas we traveled through. Foliage was dead on about 30 % of the seedlings across sites. All species were affected. There did not appear to be any difference in the level of injury between released sites and those that had not been entered.

No initial insect or pathogen damage was found at either location. Symptoms were present on all species of conifers so it was unlikely an insect or pathogen was involved since they generally tend to be rather species specific. The most likely cause is winter injury due to low temperature. The symptoms we observed were typical of winter desiccation resulting from a combination of warm temperatures and/or winds and sunny days occurring when the soil is frozen or at low temperatures. As winter injury worsens, tissues are damaged and killed, beginning at the top of the tree, in the following order: youngest needles, older needles, twigs and then buds. Snow

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Following the initial field evaluation three 1/10 acre plots were installed to monitor the effect of the foliage death on seedling growth and survival. On August 4, 2000, FPM personnel returned to the plots and observed that most of the injured seedlings had active current year's growth and that few terminal buds had been killed. Based on these initial observations, little mortality of the injured seedlings is expected, however some growth loss may occur this year. Plots will be monitored once more this year, and again in the spring of 2001 to evaluate any change in seedling condition. If you have any questions regarding this evaluation or request further assistance please contact me at 252-6610.



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